

UNITED STATES NAVAL ACADEMY

Spring 2003 SA475E Section 5041

Quantitative Economics Seminar: Understanding Asset Prices and Returns

Mathematics Professor:

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Primary question: Are U.S. capital markets efficient (competitive)?

In order to answer this question, we first need to understand what market efficiency means. This is done by developing a simple theoretical model of how assets are priced. By solving a single (representative) agent's utility maximization problem, the first order conditions reveal a general asset pricing equation that can be used to price any asset. Given certain assumptions, market efficiency and the random walk hypothesis fall out of this basic equation.

While the theoretical model is illustrative, it cannot be used to test for market efficiency empirically in that the determinants of asset prices are unobservable. Students will therefore come up with their own econometric models (based on the theoretical model) which are empirically tractable. They will then gather the relevant data and use their model to test whether capital markets are indeed efficient.

In the first seven weeks the course instructors will take about 60% of the class time presenting material on the seminar topics, teaching you key issues in finance. The remainder of the class time will be devoted to having the students reporting on their progress in developing their project proposals. You will present ideas found in the literature, and describe topics/problems you think may provide a subject for the project portion of the course.

During the remainder of the course you will be working on your research project. **You must confer with Professor Fowler or Smith at least once a week** and on a less frequent basis you will be directed to brief the other seminar leader on your project.

I. The Course Research Paper

The major focus of this seminar is your research paper. During the first six weeks you are to search for a topic for your research paper. Reports of your literature search are required.

II. Paper Format

The paper will start with title page, which will include your name, the date, the course and an abstract, which will be about half-a-page in length and single-spaced. The body of the paper will be divided into sections and double-spaced. The body should include a literature review with at least three pertinent articles from quality journals, approved research reports or books, a description of the econometric model, the results, and the conclusions. Papers should include figures and tables where

appropriate. These figures and tables should be discussed in the paper and be able to “stand on their own” in clarity (which implies a title is necessary). Results from SPSS or MATLAB should not merely be stapled to the back, but should be professionally redone as a figure or table to support your results. Your paper’s target audience is your classmates and future quantitative economic majors. The data used in most cases will be put into an appendix; the paper may have several appendices.

There will be a section at the end of your paper listing references. Published material will be referenced following the style used in the *American Economic Review* or *The Chicago Manual of Style*. Reference to material to be found on the web should follow the following format:
Author (if known). title or short description, hyperlink address, organization sponsoring the material, the date it was last updated (if given) and the date you located it. For example:
Roth, Alvin E. "Al Roth's game theory and experimental economics page,"
<http://www.economics.harvard.edu/~aroth/alroth.html>, Dept of Economics, Harvard University, last updated 10/22/03, located on 12/19/03.

III. The Formal Presentation

Twenty minutes will be allotted for each presentation. Overhead slides or computer presentations are recommended. Students are strongly encouraged to make several “dry runs” of their presentation. Other students in the seminar will be expected to attend the presentation and offer written comments; a form to be used for this purpose will be provided.

IV. Milestones

- Written and Oral paper proposal– **17 & 19 February**.
- Final paper proposal – **26 February**.
- Empirical Results Complete – **11 March**.
- 1st draft of paper, which must include an abstract, an introduction, a literature review, description of the model, and an outline of unfinished parts of the paper – **1 April**.
- Project presentations – **13 April to 22 April**.
- Complete draft of paper due **20 April**.
- Final submission of paper **27 April**.

V. Grading

Interim grades (6 and 12 week) are based on seminar participation and progress reports. The final course grade is driven primarily by the grade on the research paper (80%) and quality of the formal, oral presentation (20%) of the research paper.